Safety technologies incorporated into the facility design should have been proven by experience or testing and should be reflected in approved codes and standards. Significant new design features should be introduced only after thorough research and model or prototype testing at the component, system, or facility level, as appropriate, to achieve the necessary level of confidence that the design feature will perform as expected.

Implementing Codes and Standards:

ACI 318-9~~5~~9 Building Code Requirements for Structural Concrete
ACI 318R-9~~5~~9 Commentary on Building Code Requirements for Structural Concrete
ACI 349-97 Code Requirements for Nuclear Safety-Related Concrete Structures
ACI 349R-97 Commentary on Code Requirements for Nuclear Safety-Related Concrete Structures
AISC MO16-89 Manual for Steel Construction - Allowable Stress Design, Ninth Edition
ANSI/AISC N690-94 Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities
ASCE 4-98 (Draft) Seismic Analysis of Safety-Related Nuclear Structures and Commentary
ASCE 7-95 Minimum Design Loads for Buildings and Other Structures
DOE-STD 1020-94 (Change 1, 1996) Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities
1997 UBC Uniform Building Code
DOE Newsletter (Interim Advisory on Straight Winds and Tornados) Dated 1/22/98
ACI 530-95, Building Code Requirements for Masonry Structures and Commentary
BNFL-5193-SRD-01, Appendix A, Implementing Standard for Safety Standards and Requirements Identification
ISO 10007 Quality Management – Guidelines for Configuration Management

Regulatory Basis:

DOE/RL-96-0006 4.1.2.4 Safety Responsibility-Operating Experience and Safety Research
DOE/RL-96-0006 4.1.5.1 Configuration Management-Formal Configuration Management
DOE/RL-96-0006 4.1.6.2 Quality Assurance-Established Techniques and Procedures
DOE/RL-96-0006 4.2.2.1 Proven Engineering Practices/Margins-Proven Engineering Practices
DOE/RL-96-0006 4.2.2.3 Proven Engineering Practices/Margins-Safety System Design and Qualification
DOE/RL-96-0006 4.2.5.1 Inherent/Passive Safety Characteristics-Safety Margin Enhancement

Implementing Codes and Standards:

ACI 318-9~~5~~9 Building Code Requirements for Structural Concrete
ACI 318R-9~~5~~9 Commentary on Building Code Requirements for Structural Concrete
AISC MO16-89 Manual for Steel Construction - Allowable Stress Design, Ninth Edition
ASCE 7-95 Minimum Design Loads for Buildings and Other Structures
DOE-STD 1020-94 (Change 1, 1996) Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities
1997 UBC Uniform Building Code
ACI 530-95 Building Code Requirements for Masonry Structures and Commentary
DOE Newsletter (Interim Advisory on Straight Winds and Tornados) Dated 1/22/98
BNFL-5193-SRD-01, Appendix A, Implementing Standard for Safety Standards and Requirements Identification

Regulatory Basis:

DOE/RL-96-0006 4.2.2.2 Proven Engineering Practices/Margins-Common-Mode/Common-Cause Failure

Justification: This change is made for consistency with NRC acceptance criteria.

Use the seismic provisions in Table 2-5 concerning PC-3 SSCs except that the structural capacity is to be based on code ultimate strength or allowable behavior level.

Justification: Limit-state level method of determining the structural capacity is more appropriate for evaluation of existing facilities (the RPP-WTP Facility is a new facility).

Page 3-1, Section 3.1, Introduction

Perform performance categorization of SSCs per SRD Safety Criteria 4.1-3 and 4.1-4 in lieu of DOE-STD-1021-93.

Justification: DOE-STD-1021-93 is inconsistent with the top-level safety principles in DOE/RL-96-0006. The functions of this standard are implemented by SRD Safety Criteria 4.1-3 and 4.1-4 and Appendix A to Volume II of the SRD.

Page 3-2, Section 3.2, Wind Design Criteria

Use peak gust speed values contained in Attachment "A" of DOE Interim Advisory dated 1/22/98 in lieu of fastest-mile wind speeds shown in Table 3-2; also, per DOE Interim Advisory, use an importance factor for PC-2 SSCs of 1.0 in lieu of 1.07 indicated in Table 3-1.

Justification: The Newsletter was issued by DOE as an interim measure for use with DOE-STD-1020-94 until such time as the standard is revised.

Page 3-5, Section 3.2.1, Performance Category 1

Design structural steel PC-1 structures per AISC Manual of Steel Construction, Allowable Stress Design, Ninth edition.

Justification: The AISC code is preferred to the UBC because it is a national consensus code.

Design reinforced concrete PC-1 structures per ACI 318-~~95~~99.

Justification: The ACI 318 code is preferred to the UBC because it is a national consensus code.

Page 3-6, Section 3.2.2, Performance Category 2

Design structural steel PC-2 structures per AISC Manual of Steel Construction, Allowable Stress Design, Ninth edition.

Justification: The AISC code is preferred to the UBC because it is a national consensus code.

Design reinforced concrete PC-2 structures per ACI 318-~~95~~99.

Justification: The ACI 318 code is preferred to the UBC because it is a national consensus code.

Page 3-6, Section 3.2.3, Performance Category 3

Design structural steel PC-3 structures per ANSI/AISC N690-94.

Justification: This change is made for consistency with NRC acceptance criteria contained in Section 3.8.4 of NUREG-0800, Rev. 2 (Draft).

Page C-31, App. C, Section C.4.2, Static Force Method of Seismic Analysis

Use 1997 UBC in lieu of 1994 UBC.

Justification: 1997 UBC is more current.

Page C-32, App. C, Section C.4.3, Soil-Structure Interaction

Use ASCE 4-98 (Draft) in lieu of ASCE 4-86.

Justification: ASCE 4-98 (Draft) is more current.

Page C-38, App. C, Section C.4.4, Analytical Treatment of Energy Dissipation and Absorption

Design PC-3 (Seismic Category I) SSCs for the elastic seismic response to DBE per Section 3.7.2 of NRC NUREG-0800, Rev. 3 (Draft) with no credit for inelastic energy absorption. Note: Credit for inelastic energy absorption is allowed in the design of PC-3 (Seismic Category II) SSCs.

Justification: This change is made for consistency with NRC acceptance criteria.

Page C-52, App. C, Section C.5.1, Capacity Approach

Use ACI 349 for design of reinforced concrete in lieu of UBC.

Justification: This change is made for consistency with NRC acceptance criteria contained in Section 3.8.4 of NUREG-0800, Rev. 2 (Draft).

Use ANSI/AISC N690 for design of structural steel in lieu of UBC.

Justification: This change is made for consistency with NRC acceptance criteria contained in Section 3.8.4 of NUREG-0800, Rev. 2 (Draft).

Page C-62, App. C, Section C.7, Special Considerations for Existing Facilities

Delete this section.

Justification: This section deals with existing facilities and the RPP-WTP Facility is a new facility.

Page C-66, App. C, Section C.9, Alternate Seismic Mitigation Measures

Delete this section.

Justification: Seismic base isolation is not planned to be used in the RPP-WTP Facility design.

Page D-3, App. D, Section D.3, Load Combinations

Design structural steel PC-1 and PC-2 structures per AISC Manual of Steel Construction, Allowable Stress Design, Ninth edition.

Justification: The AISC code is preferred because it is a national consensus code.

Design reinforced concrete PC-1 and PC-2 structures per ACI 318-~~95~~99.

Justification: The ACI 318 code is preferred because it is a national consensus code.